

Specifications for Construction of NEFSC Winter Survey Flat Net Trawl (60-80)

Body of the net

The dimensions of the net sections are given in the accompanying net plans. The webbing for the upper and lower wings, square, and bellies is made of 4 mm dark green polyethylene 16 carrier braided twine. The webbing is depth stretched, heat stabilized and single selvedge with an *Rtex value of 5263. The mesh size is 5.5 in. knot center to knot center.

The net sections are joined together by sewing a half mesh row of double 3 mm Euro-flex twine green and white in color for easy identification of sections.

The top and bottom sections of the net are joined together at their sides by a gore or laceage that gathers four meshes from each of the top and bottom sections. These are seized every 18 inches and wrapped in between the seizings using single # 120 (Rtex = 8333) nylon twine.

Dog-ear meshes are woven onto the top and bottom wings with single 8 mm nylon twine.

Gore lines

Gore lines are $\frac{3}{4}$ in. diameter polyplus Dacron ropes that are tied to the eye of the headrope and extend to the end of the belly, where another eye splice is made. The codend has a separate $\frac{3}{4}$ in. gore line, which extends to two meshes from the aft end and is tied into the eye splice from the main gore line with a fisherman's bend. The gore lines are made slightly shorter than the laceage and are seized to it at intervals of approximately 18 inches with single #120 nylon (Rtex = 8333).

Footrope

A 120-foot piece of $\frac{3}{4}$ in. polyplus Dacron rope is used to construct the hanging line. The hanging line is marked in the middle at 60'. On either side of the middle mark, five-foot marks are made to hang the corners where the first dog-ear for each wing will be attached. Therefore, a total of 10' is used to attach the lower belly. From each corner, mark 42' towards the door end. The last dog is attached onto the mark of the lower wing. After the 42' mark on each side, a five-inch eye is made by pinching the rope and tying it off with #120 nylon twine (Rtex = 8333). The next section of rope immediately after the eye is measured and marked at seven feet and used for the up-and-down line, which is tied into the headrope eye by a clove hitch and is seven feet in length from eye to eye, not including the eyes.. The extra line is seized to the up and down line and used for future repairs. The hanging line is seized to the lower wings and belly using yorkings with a hitch.

Belly Lines

The belly lines are two strengthening lines on the bottom belly made out of $\frac{5}{8}$ in. polyplus Dacron rope. They are seized to the hanging line at the corner and run out and back to the gore line on the bar of the belly webbing, where they are seized to the webbing and to the gore line.

Headrope

The headrope is made of 7/8 in. diameter combination manila/wire rope. It consists of three 20' sections. All sections have eyes swedged at each end without thimbles. The sections are joined by 1/2 in. marine grade hammerlocks.

Hanging

Dog-ear meshes on the upper and lower wings are hung to both the headrope and footrope with seizings of single #120 (Rtex = 8333) braided nylon twine. The square and lower belly selvedge meshes are evenly hung on the headrope and footrope with single #120 braided nylon twine. Hanging lengths for the headrope and footrope are shown on the attached plan.

Floats

Attached to the headrope are 13 eight-inch diameter spherical gray aluminum floats with double beackets. The floats are arranged with five evenly spaced in the bosom or center section of the net (the square), and four each evenly spaced on the wings, starting at 1.5' from the door end eye. Each float is attached with a 5/8 in. polypius Dacron rope that is threaded through the beackets, and then seized to the backside of the headrope with #120 braided nylon twine (Rtex = 8333).

Fishing line (Combination wire)

The Fishing line is made up of three lengths of 7/8 in. diameter combination manila/wire rope with swedged eyes. The wing sections are 32', and the center section is 16'; lengths include the swedged eyes. They are joined with 1/2 in. hammerlocks. The Fishing line is seized to the hanging line at evenly spaced intervals with double # 96/108 (Rtex = 7143) braided nylon twine. The seizings are centered between the dog chains that connect the sweep at 1.5' intervals (approximately 12 links). The excess hanging line is evenly spread out in equal sized bights.

Sweep

The sweep consists of three lengths of chain with loosely spaced cookies. The center section of the sweep consists of 16' of 5/8 in (75 links) Trawlex chain with 6.5 in. rubber cookies with approximately 2 3/8 in. center holes. The wing sections are made from 1/2 in. Trawlex chain and are each 32' (183 links) in length, with 4.5 in. rubber cookies that have a center hole of approximately 2 1/8 in. The sections are joined with 5/8 in. hammerlocks. The rubber cookies are made from stamped rubber truck tires. The stamping process results in the cookies having varying diameters of + - 1/2 in. The sweep is connected to the Fishing line by droppers, which consist of a 5/16 in. shackle, one 5/16 in. chain link, and one 5/16 in. steel ring of three-inch inner diameter. The shackle is connected to the sweep, and the Fishing line is threaded through the rings. The droppers are spaced 18 in. apart (10 links) on the sweep starting one link back from the end of the sweep. There are 47 droppers in the construction of the sweep.

1/2 inch Chain extends nine feet down each wing, starting eight links back from the end of the sweep. There are eight links between attachments and there are five attachments in the span. The mouth of the trawl has 23' of 1/2 in. tickler chain hung evenly on each side of the center of the sweep, with approximately 15 links between shackles for each bite.

Liners

The top belly is lined starting 30 meshes up from the bottom and sewn down the sides to the codend. The dimensions of the liner pieces are 30' (5 fathom) [top] x 21' (3.5 fathoms) deep x 18' (3 fathoms) [bottom]. The liner material is #147 knotless white nylon webbing, with a mesh size of 1/2 in.

The top belly liner is reinforced along the leading edge and down each side by gathering and seizing a 1/2 in. diameter roll. This roll is then seized to #18 braided nylon twine, used as a strengthener. The #18

strengthened liner is then seized into the belly one mesh in from the gore. The remaining belly liner, at the start of the codend, is then left unseized and overlaps the codend liner.

The codend is lined with #147 knotless white nylon webbing, with a mesh size of ½ in. and is 15' (2.5 fathoms) across by 24' (4 fathoms deep).

The codend liner is reinforced along the forward edge by gathering and seizing a ½ in. roll. #18 braided nylon twine, with overhand knots every eight inch, is seized to the roll of liner material. This same technique is used to make a gore with the two edges of the liner. A false gore is then made opposite this by seizing another piece of the knotted #18 thread to the liner. The codend liner is attached by seizing to the codend starting at one and one half meshes from the top. The liner is seized at each codend mesh around the interior circumference of the codend, and then hangs down from this point

Codend

The webbing in the codend is double mesh, 5.5 inches measured between the center of the knots; depth stretched, and heat stabilized. The twine used to construct the webbing is made from 16-carrier dark green polyethylene braided twine, with a diameter of 5 mm.

The codend measures 36 meshes deep by 25 meshes across. There are five meshes gathered on each side in each gore. The codend is constructed from one panel of 60 meshes wide by 36 meshes deep.

Rings are hung at the end of the codend at a ratio of one ring for every three meshes. The rings are made from 5/16 in. galvanized steel, two inches ID.

Legs & Ground cables

The upper legs are constructed from five fathoms of 5/8 in. wire. The lower legs are constructed from five fathoms of ½ in. chain. The ground cables are constructed from 30 fathoms of 7/8 in. wire. The backstraps are 9'6" of ½" Trawllex and are attached in the last aft hole closest to the aft end of the door.

Doors

The doors are Portuguese Polyvalent 450 kg (see door specifications).

* Rtex = grams per 1000 meters

Flat net - Albatross IV

Warp from vessel

Doors
450 kg
Euronete

Backstraps
9' 6"
1/2" Trawllex

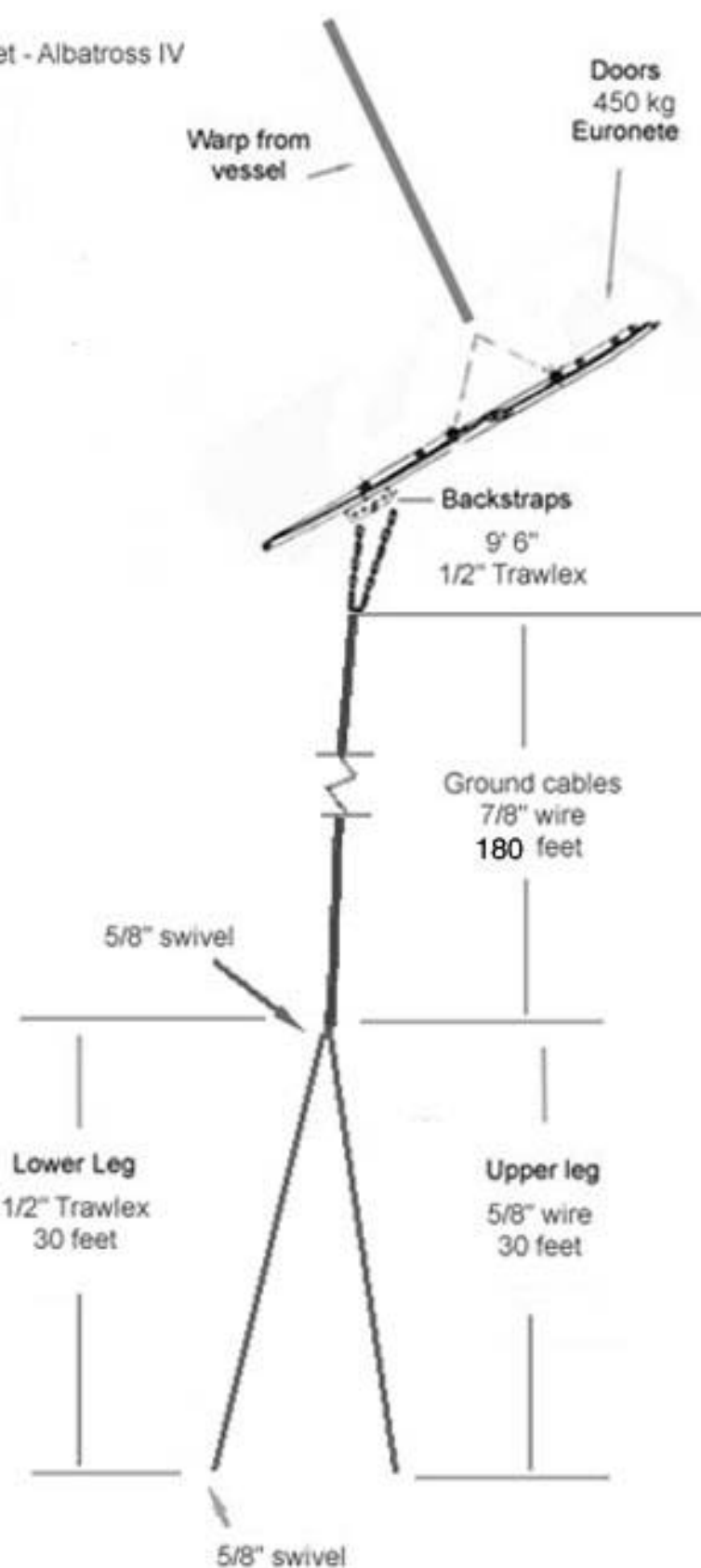
Ground cables
7/8" wire
180 feet

5/8" swivel

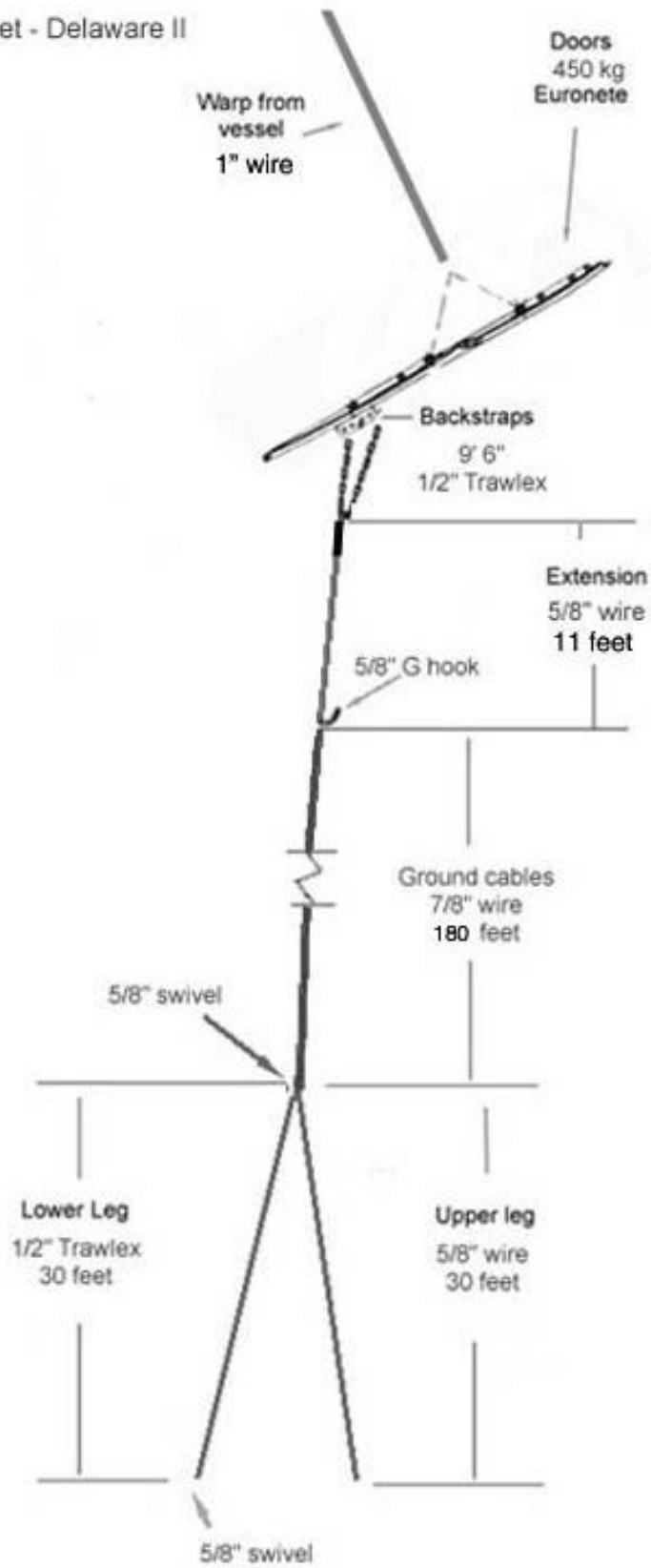
Lower Leg
1/2" Trawllex
30 feet

Upper leg
5/8" wire
30 feet

5/8" swivel



Flat net - Delaware II



NOAA/NMFS Flat Net Specifications:

Net material

Size	5.5 in.
Material	4 mm 16 carrier braided Poly
Color	Dark Green

Headrope

Length (including eyes)	61' (three 20' sections + 6 in. past the eye)
Material (i.e. nylon, poly)	Combination manila/wire rope
Size (diameter)	7/8 in.
Other	Joined with paten links

Footrope

Length (including eyes)	80' - See spec on page 50
Material (i.e. nylon, poly)	Poly Dacron
Size (diameter)	5/8 inch
Other	See spec on page 50

Ground Gear

Top leg -	
Size of wire	5/8 in. wire
Length of wire	30 feet
Other	

Bottom leg -

Size of wire / chain	1/2 in. Trawlex chain
Length of wire / chain	30 feet
Other	

Ground cables –

Size of wire	7/8 in. wire
Length of wire / chain	30 fathom
Other	

Gore Lines / belly strengthener

Material	5/8 poly-plus Dacron rope
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Flotation

Number of floats	13
Size of floats	8 in.
Buoyancy of floats	Aluminum (Uncertain of buoyancy)
Placement of floats	Placement shown on page 50

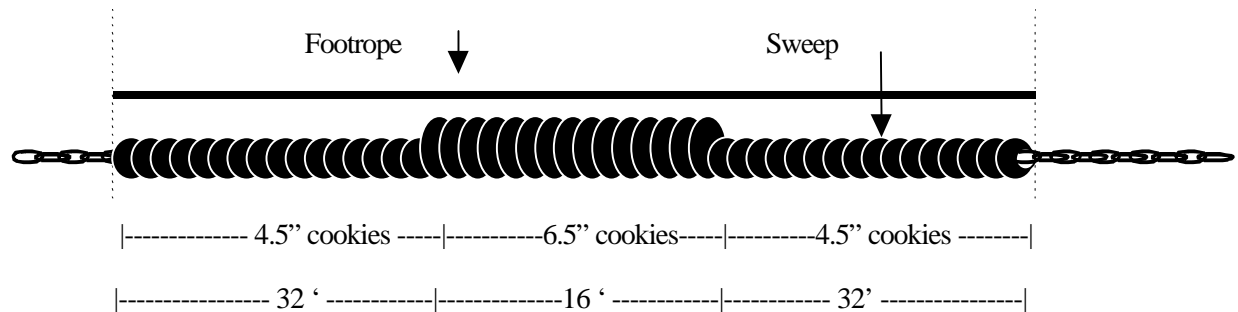
Sweep Design

Size of chain	Middle = 5/8 in. Trawlex Outers = 1/2 in. Trawlex
Length of wire	Middle = 16 feet Outers = 32 feet
Number of droppers or attachments	Number shown on page 6
Placement of droppers or attachment	Placement shown on page 6
Cookies	
Number	UNKNOWN

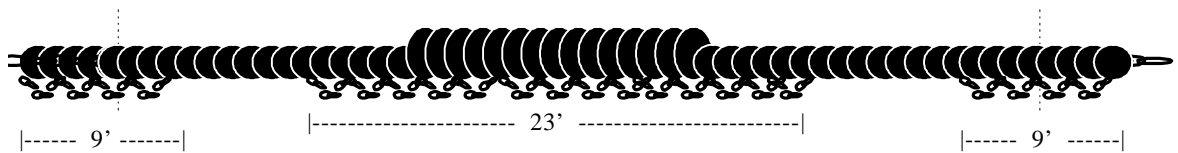
Size	Middle = 6.5 in. Outers = 4.5 in.
Chain Sweep	
Link size	½ in. standard chain
Number of links	
Wing sections	82
Center section	174
Attachments	See figure on page 49
Codend	
Material	5 mm Double mesh green poly 5.5 in.
Number of meshes deep	36
Number of meshes in circumference	60 = 25 top + 25 bottom and 5 in each gore
Liner	Starts one and a half meshes back from the attachment to bellies. Made from #147 knotless white nylon webbing, with a mesh size of 1/2 in.
Lower Belly	
Number of meshes deep	80.5
Tapers	See drawing on page 51

SWEEP CONFIGURATION

(Drawing not to scale)



Chain sweep configuration
(Drawings not to scale)



Chain is attached as follows:

Wing – the first attachment is 8 links (L) back from the end of the sweep. The next attachments are 9 L, 8 L, 8 L, 8 L.

Center – the first attachment is 15 L, then 14 L, all others are 15 L. There are a total of 15 attachments

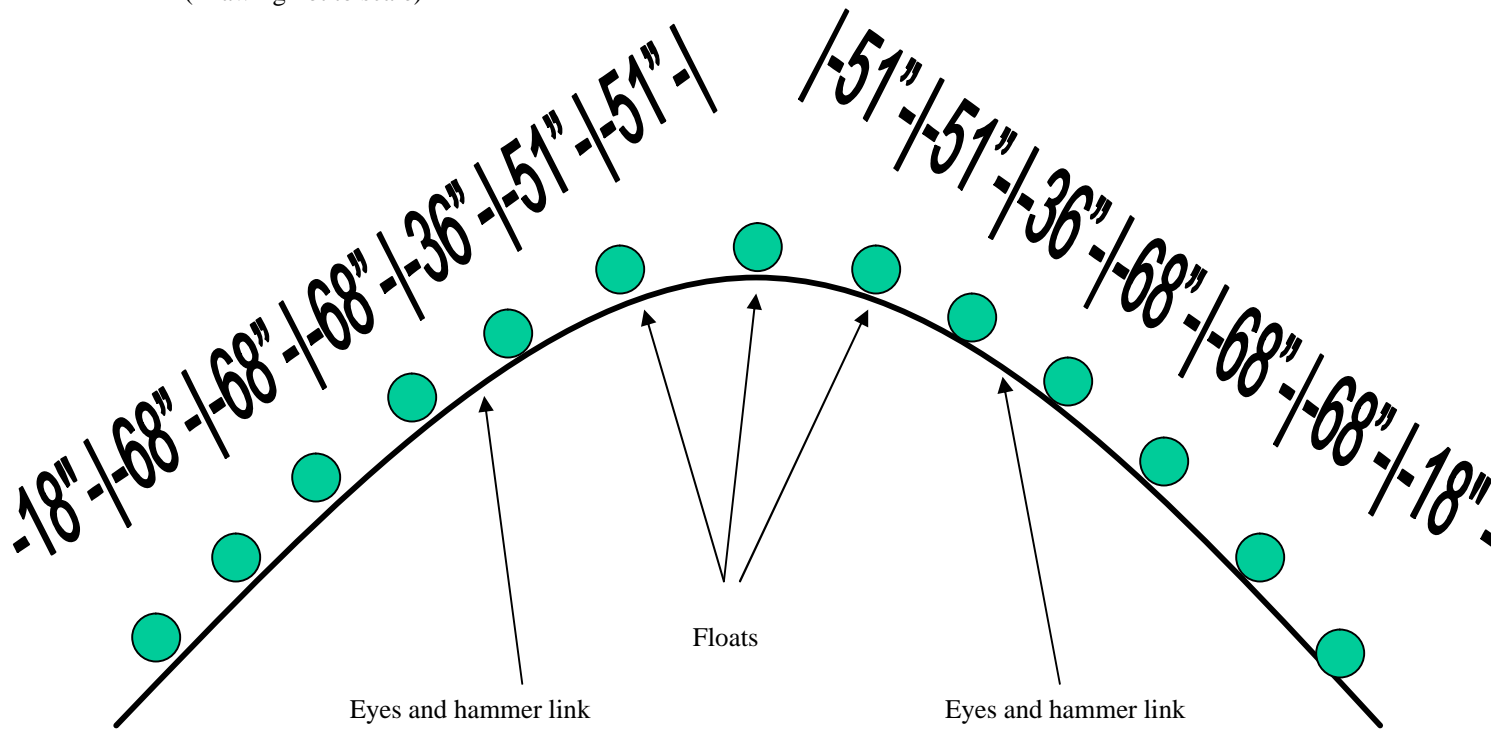
Dropper configuration



Droppers are attached as follows:

The first dropper is attached 4 links back from the door end of the sweep. Thereafter, there is 10 links between droppers. There are 47 attachments.

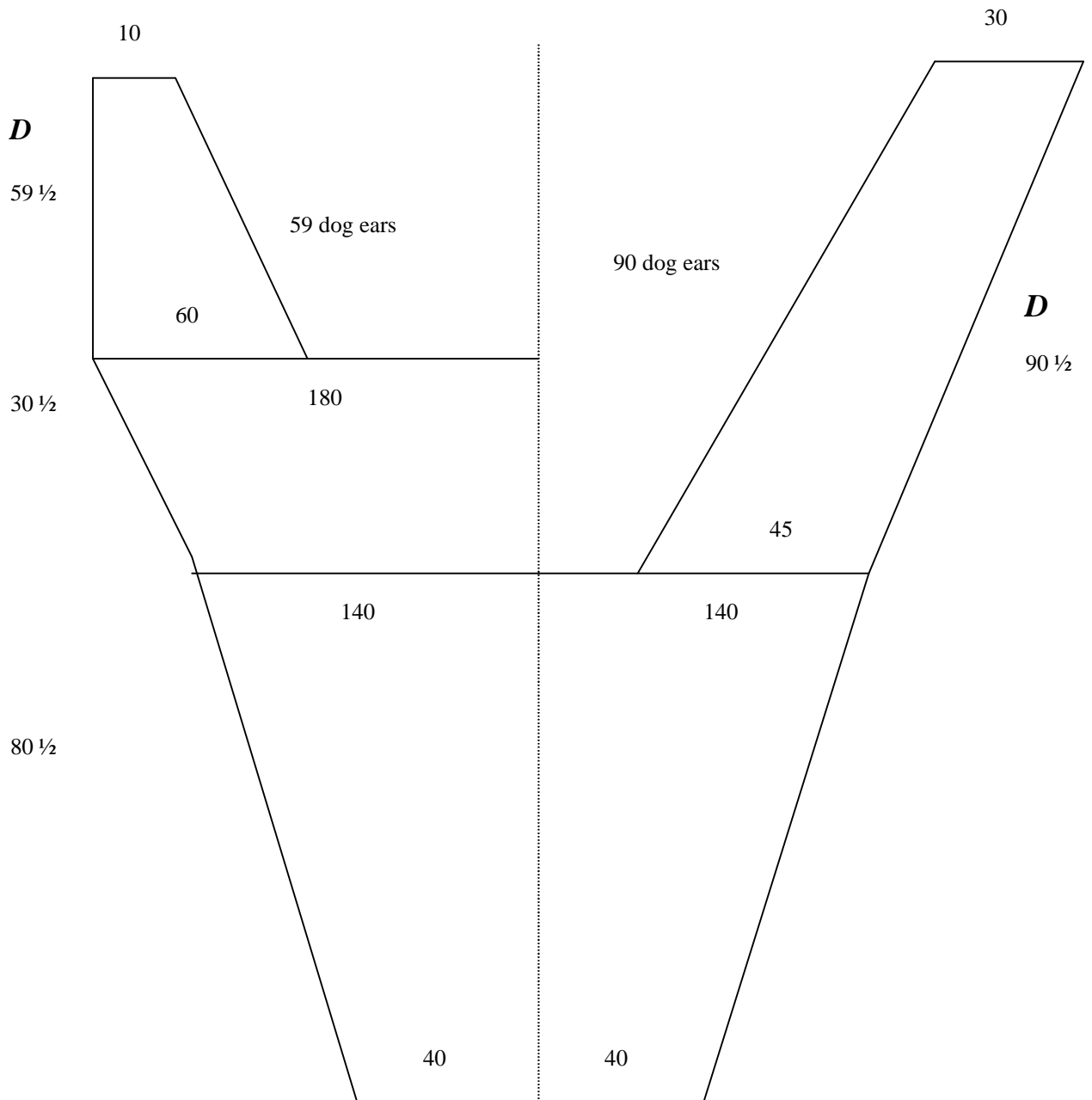
Headrope configuration
(Drawing not to scale)



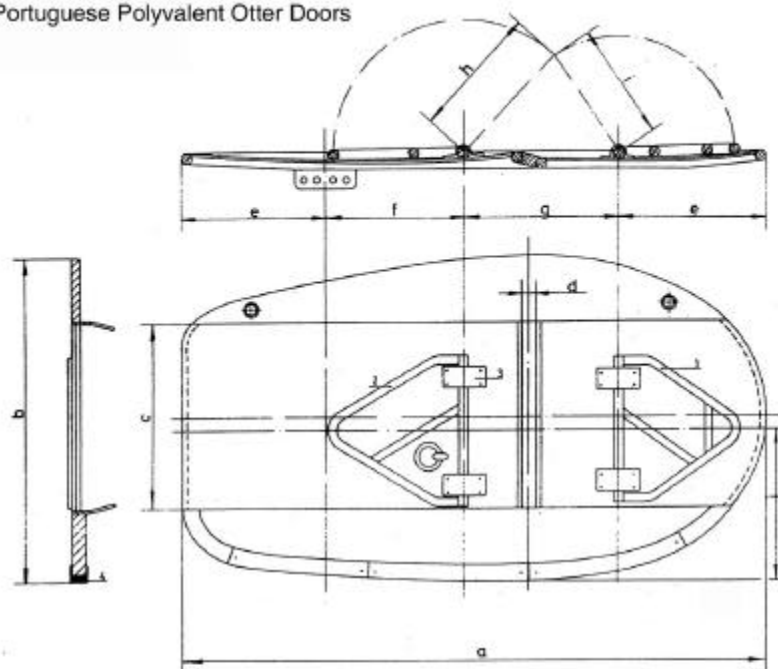
Total length of headrope = 61'2"

Net configuration:
(Drawing not to scale)

Tapers:
Lower Wing = 1M, 10B, 1M, 10B, 1M, 10B, 1M, 9B.
Upper Wing = 3M, 1B
Square = 1M, 4B
Belly = 1M, 4B, 1M, 3B, 1M, 3B,



Portuguese Polyvalent Otter Doors



EURONETE TRAWL DOORS - METALLIC

Ref.	Weight Kg.	Weight inside water	Surface m2	Sizes in mm									
				a	b	c	d	e	f	g	h	i	j
124	450	261	2,84	2530	1350	810	60	632,5	592,5	672,5	610	540	630

- REPLACEABLE PIECES:
- 1 - Front bracket.
 - 2 - Back bracket
 - 3 - Brackets clamps
 - 4 - Set of 3 steel shoes
 - 5 - All bolts